

REMARKS

Claims 1 and 23 have been amended; and new claim 25 has been added. Accordingly, claims 1-3, 8-12, 17-18, 20 and 23-25 are currently pending in the present application.

I. Amendments:

Claim 1 has been amended to clarify that the stabilized hydrogen peroxide solution is combined with the at least one mineral acid and the water in an amount to provide a cleaning solution which includes from about 0.5 to about 20 wt% hydrogen peroxide. Support for claim 1 can be found throughout the specification and, specifically, in the specification at page 2, lines 27-29; and page 3, line 25 to page 4, line 4. No new matter has been added.

Claim 23 has been amended to recite that the contacting step is carried out at a temperature in the range of about 20 to about 80°C for a time period from about 10 seconds to about 2 hours, wherein only a small amount of metal is dissolved in the solution. Support can be found in the specification at page 3, lines 11-24. No new matter has been added.

New claim 25 depends from claim 23 and recites that the contacting step is carried out under conditions wherein at least about 41% of the initial amount of hydrogen peroxide remains in the solution after the contacting step.

II. The Invention:

The present invention relates to the use of a stabilized aqueous hydrogen peroxide solution having a relatively high concentration of hydrogen peroxide and containing a relatively high amount of a 1-hydroxyethylidene-1, 1-diphosphonic acid (HEDP) based additive. The solution is highly stable and unexpectedly remains stable in both the substantial absence of other components and when added to other formulations that contain components which normally have a destabilizing effect on the

hydrogen peroxide. The unexpected stability characteristics are due to the presence of the HEDP additive in relatively high amounts.

III. Rejections:

Claims 23 and 24 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Specifically, the Office Action contends that the specification does not teach an amount of time to effect cleaning and less than an amount of time to effect etching. Applicants respectfully traverse.

Applicants respectfully submit that the claims have been amended to include specific temperature and time ranges, as well as the requirement that only a small amount of metal is dissolved.

Accordingly, it is respectfully requested that the rejections of claims 23 and 24 under 35 U.S.C. § 112, first paragraph, be withdrawn.

Claims 1-3, 8-12, 17-20 and 23-24 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action contends that it is unclear which solution has from about 0.5 to about 20 wt% hydrogen peroxide. Regarding claims 23 and 24, the Office Action contends that it is unclear what one would consider as a time sufficient to effect cleaning but less than a time to effect etching. Applicants respectfully traverse.

Applicants respectfully submit that claim 1 has been amended to clarify that it is the cleaning solution that has the above recited hydrogen peroxide range and that claim 23 has been amended to include specific temperature and time ranges, as well as the requirement that only a small amount of metal is dissolved. Based on these amendments, Applicants submit that the claims are now clear.

Accordingly, it is respectfully requested that the rejections of claims 1-3, 8-12, 17-20 and 23-24 under 35 U.S.C. § 112, second paragraph, be withdrawn.

Claims 1-3, 8, 12, 17-18 and 20 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Brasch (US 4,378,270), in view of applicant's admission of the prior art, McDonogh (US 5,364,549) or Jadesjo (EP 0845526). Applicants respectfully traverse.

Applicants thank Examiner Carrillo for extending the courtesy of a telephonic interview with Applicants' representative on April 14, 2008. Applicants' representative discussed distinctions between the claimed invention and Brasch, and contended that Brasch fails to teach a stabilized hydrogen peroxide solution as presently claimed. No agreement was reached.

Applicants submit that none of the cited references disclose, teach or suggest using relatively high amounts of HEDP in hydrogen peroxide solutions (having a relatively high hydrogen peroxide concentration) and in the substantial absence of other components, as presently claimed. In that regard, Applicants respectfully submit that the plain language of claim 1, as well as the specification, require that the total amount of optional components (i.e., components other than (i) through (iii)) must be less than about 10 wt%, based on the hydrogen peroxide. In that regard, claim 1 and the specification teach that the concentrated hydrogen peroxide solution (used to make the more dilute cleaning solution) can include "components" (other than hydrogen peroxide, HEDP and water) in an amount up to about 10 wt% (See spec at page 3, lines 1-12). Further, the examples (showing the invention) all use a concentrated hydrogen peroxide solution to prepare the diluted cleaning solution, where the concentrated solution has a total amount of optional components less than 10 wt%. Applicants respectfully submit that based on the use of the plural form of the term "components," the description of the "components other than (a) through (c)" and the examples, it is clear to one skilled in

the art that claim 1 excludes a total amount of all optional "components" in excess of about 10 wt%, based on the hydrogen peroxide.

Although Brasch discloses HEDP as one possible organo phosphonic acid for use in an etching solution that also includes hydrogen peroxide, Applicants respectfully submit that they are unaware of any disclosure, teaching or suggestion of first preparing a concentrated hydrogen peroxide solution, as presently claimed, that includes hydrogen peroxide, HEDP and water, and less than about 10 wt% of other components. In that regard, Brasch teaches that the solution containing the organo phosphonic acid will also contain significant amounts of other components (in addition to hydrogen peroxide and water), e.g., phosphoric acids, sulfuric acid and phenolsulphonic acid.

McDonogh was cited merely to show that it was conventional in the art to dilute a concentrated solution of hydrogen peroxide prior to use for treating metals. However, Applicants respectfully submit that they are unaware of any disclosure, teaching or suggestion of a concentrated hydrogen peroxide solution, as claimed, which includes relatively high levels of HEDP. Instead, McDonogh teaches conventional concentrated hydrogen peroxide solutions that include less than 0.1% of known stabilizers such as polyphosphonic acid compounds (See col. 4, lines 57-64). As such, McDonogh actually teaches away from the presently claimed invention.

Jadesjo was cited merely to show that it was known to provide a solution containing hydrogen peroxide, surfactant and phosphonic acid and having a pH of less than 7. However, Applicants respectfully submit that they are unaware of any disclosure, teaching or suggestion of a concentrated hydrogen peroxide solution, as claimed, which includes relatively high levels of HEDP and water, and less than about 10 wt% of other components.

The Office Action also indicates that it was known that higher concentrations of stabilizer are required for dilute solutions of hydrogen peroxide, as evidenced by Christiansen (US 4,614,646). However, it was generally understood by one skilled in

the art that high levels of stabilizer would have a destabilizing effect at high concentrations of hydrogen peroxide (See Bonislowski Dec., submitted with Applicants' response to Office Action of July 11, 2007). What Applicants have now discovered is that HEDP is unique in that has good stabilizing effect at both high and low concentrations of hydrogen peroxide, as discussed below.

It is the invention as a whole, and not some part of it, which must be obvious to support a rejection under 35 USC §103(a). In re Antonie, 195 USPQ 6, 8 (CCPA 1977). The unsuggested recognition of a relationship between the result produced and the particular design parameters is the touchstone of nonobviousness. A process is unobvious in cases where optimizing a known result-effective variable produces unexpectedly good results or where the art did not recognize that the parameter optimized was a result-effective variable. *Id.* at 8-9.

The present inventors have found unexpectedly that it is possible to provide an aqueous hydrogen peroxide solution having a relatively high concentration of hydrogen peroxide and containing a relatively high amount of HEDP based additive that is highly stable and remains stable in both the substantial absence of other components, as well as when the solution is added to other formulations that contain components which normally have a destabilizing effect on the hydrogen peroxide.

The unexpected results of using HEDP in relatively high amounts to stabilize an aqueous hydrogen peroxide solution having a relatively high concentration of hydrogen peroxide (and the substantial absence of other components) can be seen in the declaration of David Bonislowski (submitted in related application ser. no. 10/301,760 and attached hereto) and the data presented in that declaration. Applicants respectfully submit that it was generally believed that high levels of oxidizable organic stabilizers in concentrated hydrogen peroxide solutions would actually have a destabilizing effect (Dec. at ¶ 5). However, a review of Mr. Bonislowski's declaration reveals unexpectedly that HEDP does not exhibit this behavior, while other phosphonic acid based stabilizers do. Contrary to this belief, HEDP provided a stable hydrogen peroxide solution

(containing 35% hydrogen peroxide) even when it was present in higher amounts than other phosphonic acid based stabilizers. (Dec. at p.3, bar graph).

The Office Action at pages 10-12 (Response to Arguments) indicates that the declaration is improper because Application 10/301760 is not related to the instant application. Applicants submit that the instant application is a CIP of that application. Further, the Office Action contends that the data in the declaration is not commensurate in scope with the present claims. The data shows that a 35 wt% hydrogen peroxide solution is stabilized using 7.9 wt% HEDP, based on the total solution. Claim 1 requires about 10 to about 60 wt% HEDP, based on the amount of hydrogen peroxide. As such, Applicants submit that the data is commensurate.

Therefore, as none of the cited references disclose, teach or suggest a concentrated hydrogen peroxide solution, as presently claimed, that includes hydrogen peroxide, HEDP and water, and less than about 10 wt% of other components, and did not recognize the unique behavior of HEDP in high concentrated hydrogen peroxide solutions, Applicants submit that the present invention is not obvious in view of these references.

Accordingly, it is respectfully requested that the rejections of claims 1-3, 8, 12, 17-18 and 20 under 35 U.S.C. §103(a), as being unpatentable over Brasch, in view of applicant's admission of the prior art, McDonogh or Jadesjo, be withdrawn.

Claims 10-11 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Brasch, in view of applicant's admission of the prior art, McDonogh or Jadesjo, and further in view of Sugihara (US 5,705,089). Applicants respectfully traverse.

Sugihara was cited for its disclosure of using a surfactant in a hydrogen peroxide cleaning solution. As claims 10 and 11 depend from claim 1, they each require the claimed concentrated hydrogen peroxide solution, as discussed above. Applicants respectfully submit that Sugihara fails to cure the deficiencies of the other cited references.

On this basis alone, it is respectfully submitted that the asserted combinations of references do not render the current claims obvious.

Accordingly, it is respectfully requested that the rejections of claims 10 and 11 under 35 U.S.C. §103(a), as being unpatentable over Brasch, in view of applicant's admission of the prior art, McDonogh or Jadesjo, and further view of Sugihara, be withdrawn.

Claims 23 and 24 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Brasch, in view of Cooper et al (US 6,063,205). Applicants respectfully traverse.

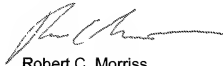
Applicants respectfully submit that Brasch teaches away from the presently claimed invention, where it teaches contact times in excess of 2 hours and that significant amounts of metal are dissolved by the etching solution (See example). On this basis alone, it is respectfully submitted that the asserted combination of references do not render the current claims obvious.

Accordingly, it is respectfully requested that the rejections of claims 23 and 24 under 35 U.S.C. §103(a), as being unpatentable over Brasch, in view of Cooper et al, be withdrawn.

IV. Conclusion:

Applicants respectfully submit that the application, including claims 1-3, 8-12, 17-18, 20 and 23-25, is in proper form for allowance, which action is earnestly solicited. If resolution of any remaining issue is required prior to allowance of the application, it is respectfully requested that the Examiner contact Applicants' undersigned attorney at the telephone number provided below.

Respectfully submitted,



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